

**ABSTRACT**

The present invention relates to a method of preparing a polyether poly(N-substituted urethane) comprising an electrolytic compound and a polymer matrix, wherein the polymer matrix is a copolymer comprising polyether unit and polyurethane unit and has 50,000-2,000,000 of a weight average molecular weight, where N-positions of the polyurethane unit are substituted with oligo(ethylene oxide) derivatives which provide flexibility and electrolytic conduction of the polymer matrix by controlling its length, composition, structure and crosslinked degree. Accordingly, the solid polymer electrolyte of the present invention provides excellent thermal stability, electrochemical stability and mechanical properties and thus, is suitable for use in polymer secondary batteries and electrochemical devices.